

WHAT IS CLAIMED IS:

1. A ceramic catalyst body comprising: loading a primary catalyst component and a co-catalyst component onto a ceramic support that enables catalyst components to be loaded directly onto the surface of a base ceramic; wherein, the base ceramic has a structure having a large number of pores, and the primary catalyst component and co-catalyst component are loaded directly onto the base ceramic surface that includes the inner surfaces of these pores.

2. The ceramic catalyst body according to claim 1, wherein 50% by weight or more of the co-catalyst component is loaded onto the inner surfaces of the pores.

3. The ceramic catalyst body according to claim 1, wherein 70% by weight or more of the co-catalyst component is loaded onto the inner surfaces of the pores.

4. The ceramic catalyst body according to claim 1, wherein the primary catalyst component and the co-catalyst component are loaded directly onto at least the inner surfaces of those pores that open to the outer surface of the ceramic support.

5. The ceramic catalyst body according to claim 1, wherein the average particle diameter of the co-catalyst component is 1/3 or less the average pore diameter of the base ceramic.

6. The ceramic catalyst body according to claim 1, wherein the thickness of the layer of the co-catalyst component loaded onto the outer surface of the ceramic support is 20  $\mu\text{m}$  or less.

7. The ceramic catalyst body according to claim 1, wherein the co-catalyst component contains an oxygen occluding component, and the oxygen occluding component is at least one selected from ceria, a ceria-zirconia solid solution and that containing a transition metal element in a ceria-zirconia solid solution.

8. The ceramic catalyst body according to claim 1, wherein, in the ceramic support, at least one or more

elements that compose the base ceramic is substituted with an element other than a composite element, and the ceramic support enables the catalyst components to be loaded directly onto this substitution element.

5       9. The ceramic catalyst body according to claim 8, wherein the catalyst components are loaded onto the substitution element by chemical bonding.

10      10. The ceramic catalyst body according to claim 8, wherein the substitution element is at least one type of element or more that has a d orbital or f orbital in its electron orbitals.

15      11. The ceramic catalyst body according to claim 1, wherein the base ceramic has for its main component a ceramic material selected from cordierite, alumina, spinel, mullite, aluminum titanate, zirconium phosphate, silicon carbide, zeolite, perovskite and silica alumina.

20      12. The ceramic catalyst body according to claim 1, wherein the ceramic support has a large number of fine pores that allow a catalyst to be loaded directly onto the surface of a base ceramic, and enables the catalyst components to be loaded directly into the fine pores.

25      13. A ceramic catalyst body according to claim 11, wherein the fine pores are composed of at least one type of defects in the ceramic crystal lattice, microcracks in the ceramic surface, and deficiencies of an element that composes the ceramic.

30      14. The ceramic catalyst body according to claim 13, wherein the width of the microcracks is 100 nm or less.

35      15. The ceramic catalyst body according to claim 13, wherein the fine pores have a diameter or width 1000 times or less the diameter of the catalyst ions that are loaded, and the number of the fine pores is  $1 \times 10^{11}/L$  or more.

35      16. The ceramic catalyst body according to claim 13, wherein the base ceramic has cordierite for its main component, and the fine pores are composed of defects

formed by substituting a portion of the composite elements of the cordierite with a metal element having a different valency.

17. The ceramic catalyst body according to claim 5 16, wherein the defects are composed of at least one type of oxygen vacancy and lattice defect, and  $4 \times 10^{-6}\%$  or more of cordierite crystals having one or more of these defects are contained in the unit crystal lattice of the cordierite.

10 18. The ceramic catalyst body according to claim 1, wherein the form of the ceramic support is at least one type selected from a honeycomb, pellets, powder, foam, fibers or hollow fibers.